

The NICHD Connection

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Practice What You Preach: Raising The Ultimate Labmate

By Dr. Silviya Zustiak

If you are an eager new mom, you are probably reading parenting books or magazines, sharing stories with your mom-friends, and soliciting advice from grandmothers on child-raising tips. Include your own trial-and-error experience, and now you have a whole gamut of ideas on how to raise a good citizen. But while you think that those principles apply only to your child, I would argue that we, the parents, could benefit immensely from the same lessons we are trying to teach our kids. Let's take work in the lab as an example, something that all of us postdocs do every day.

LESSON #1: LEARN TO SHARE

We constantly remind our kids that they need to share toys with their playmates, yet we oftentimes are not good sharers ourselves. How many times have you monopolized a big piece of equipment because your experiment is more important and time sensitive, hidden your reagents, or refused to share your expertise and ideas for fear of them being stolen?

LESSON #2: CLEAN UP

It is a bit disquieting when a curious toddler goes around the house, emptying the contents of every drawer and leaving a trail of riff-raff around the house, sometimes hiding precious possessions in the most bizarre I-would-have-never-thought-to-look-here places. So, naturally, we try to teach them how to clean up, utilizing every trick available to us, including happy tunes and role modeling at home. Yet, we regularly forget to role-model in the lab. Quite the opposite in fact: we love to store piles of papers on our desks, accompanied by empty coffee cups and bits of long-gone lunches. Our lab benches are usually cluttered with equipment and unsuccessful experiment paraphernalia, our shelves overstocked with expired reagents, and our freezers full of ice with little space for anything else.

LESSON #3: DON'T PUSH OR BULLY

We want our kids to have friends and be gentle and respectful of other people. Are we conforming to those same ideas? Have you even been a "push-over," unduly critical of your peers, or unjustifiably harsh to people who are in your charge?

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Raising The Ultimate Labmate

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LESSON #4: BE HONEST

We want our kids to tell us the truth, to confess their mistakes, and to own up to their mischief. Yet, we may sometimes think that a little dishonesty will not do anybody harm. We know all about scientific conduct and ethics and yet, we often hear about stealing of intellectual property, of retracted papers due to result misrepresentation, of publishing data based on a single experiment, of skipping important controls to save time and money, of withholding critical details in the methods section, and the like. In comparison, blaming your buddy for your own mishap sounds like an innocent trait.

LESSON #5: ACCEPT DIVERSITY

That is a tricky one and a lesson that we should actually teach not only our kids, but also ourselves. We may be even able to learn from our kids, because they, lacking our prejudices and emotional baggage, could be better about finding sincere friendships with kids from different backgrounds.

LESSON #6: YOU CAN DO IT, JUST KEEP TRYING

How many times have we seen our little ones stumbling and falling while mastering the ability to walk and run – dozens of times a day! Still, they get right back up and try again. And we, the proud parents on the sidelines, keep cheering – “You can do it! Great job! Come on, try again!” Yet, how many times we have felt discouraged when an experiment didn’t work the first time, when the project seemed too difficult, or the hours in the lab too long. If we could only have 100 percent success in the lab! Well, it takes time to learn how to use a

fork; we must allot some time for learning how to perform a Western blot.

LESSON #7: DON'T BE JEALOUS OF YOUR FRIENDS

In lab terminology, that motto will translate into: don’t be jealous of your colleagues’ ideas, success, papers, relationships, etc. While a little envy can sometimes be beneficial and prompt us to work harder, excess can be poisonous and actually stifle our own success.

LESSON #8: YOU CAN'T HAVE EVERYTHING YOU WANT

Reality for the little ones can be harsh – not getting the second lollipop, the colorful full-size pull wagon, a monopoly over the slide, or a daily trip to the pool. While in their eyes it may seem unfair, we hopefully know better what is good for them. What will happen if we apply the same logic to our lab environment? Don’t you wish you had state-of-the art equipment, the best reagents the moment you need them (all those time-sensitive cell culture experiments, where you suddenly realized you have run out of your viability assay), plenty of lab space with big windows as a bonus, an amiable and understanding boss, knowledgeable colleagues, and access to every article you want? In reality, if you have even one of those, you should consider yourself lucky.

THE ULTIMATE LESSON:

You may possess all, a few, one, or none of the above traits, but the overall lesson is still the same: think of who you want your kid to be and try to be the same.

“Write Winning NIH Grant Proposals” Led by Dr. David C. Morrison

By Drs. Stephanie Cologna and Celine Cluzeau

If you are thinking about pursuing a career in academic research, you already know that grant writing is essential for your future success. However, most scientists are not trained to write grant proposals, and competition for funding is fiercer than ever. This workshop led by Dr. Morrison on June 22 was geared at helping postdoctoral fellows write proposals that are competitive by optimizing them to sell ideas. While this workshop was focused on the NIH grant application process, the ideas and suggestions presented apply to any funding opportunity.

Dr. David C. Morrison graduated from Yale University, and was a postdoctoral fellow at NIAMD/NIH and The Scripps Research Institute. He has held several faculty positions and currently holds the position of Professor of Basic Medical Science at the University of Missouri - Kansas City School of Medicine. As a principal investigator he has been continuously funded since the early 1970s by NIH, Private Foundations, and industry. He has served on several national review panels and advisory groups. His expertise in grant writing as both a writer and a reviewer led him to establish with his colleague, Dr. Stephen Russell, the Grant Writer's Seminars and Workshops (GWSW) in 1994 with the objective to help young scientists improve their grant-writing skills.

Dr. Morrison's first statement to us was that good ideas never sell themselves! It is the applicant's responsibility to:

- » Identify a need/problem *relevant* to the institution or foundation's mission
- » Present his/her ideas to solve this problem in

an *understandable* way for the reviewers

Since grant writing is a time-consuming process, you will need to create enough time in your schedule and plan far in advance of the deadline to allow for both optimization of your ideas and review/editing of your proposal by mentors and colleagues. The two most important keys to success, which can be completed far in advance, are:

- » Reading the instructions to applicants for the grant you are planning to submit; this document contains the information about what sections/information is needed in the application and what the reviewers will want to read
- » Familiarizing yourself with the review process and the selection criteria

The two most important sections of any application are the **abstract** and the **specific aims** pages. According to Dr. Morrison, you should start by writing the specific aims page of the grant. Most reviewers will start by reading this page. Their level of enthusiasm for your ideas engendered during this one-page reading will be rate-limiting for the whole application. Expect to go through at least 5 rounds of editing and be sure to include your colleagues!

What do reviewers want to read in the **specific aims** section?

» INTRODUCTORY PARAGRAPH:

The purpose of this paragraph is to convince the reviewers that there is an unknown or issue. First, *educate* the reviewer about the subdomain of knowledge of the proposal,

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"Write Winning NIH Grant Proposals"

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which will *logically* provide the conceptual framework for the presentation of the *critical need*. The ending sentence of the paragraph should relate to the funding agency's mission.

» WHAT, WHY, WHO PARAGRAPH:

The primary goal of this paragraph is to convince the reviewers that you have a good idea or solution to the critical need. The first sentence will state the *long-term goal* of the application, which by definition has to fall within the mission of the funding agency. Secondly, define the *objective* of the application, closely *matching* the critical need and with a *well-defined* endpoint. This will logically lead to formulating the *central hypothesis* of your work – which must be testable, with two valid outcomes, right or wrong. Then, define the *rationale*, (i.e., the underlying reason you decided to pursue this project) related to the mission of the funding agency. The concluding sentence will clarify why you and your colleagues are the best people qualified to conduct this project – unique qualifications, preliminary data, unique skills/technologies, and past successes.

» AIMS PARAGRAPH:

Centerpiece of the proposal! This section will provide a logical step-by-step development of 2-3 aims by which you will address the critical need. Each aim

must have an eye-catching title, and should be conceptual and not descriptive. Avoid interdependent aims, unless there is no doubt that the early goal will be achieved. Also avoid "look-and-see" formulations for aims, unless your project is too preliminary to be specific.

» PAYOFF PARAGRAPH:

The main focus of this paragraph is to list in two-to-three sentences the specific, credible expectations and impact of your project - "return on investment" - obviously related to the critical need, and of value for the funding agency.

Once the specific aims section is written, you will just need to expand upon your ideas to write the research plan, so writing the rest of the application should be easy and therefore fun! At this point, it is a good idea to contact program officers from the different review panels/institutes that could be related to your proposal work, identify priority areas for funding if any, and determine the best study section for your application.

What do reviewers want to read in the *research plan* section?

» SIGNIFICANCE SECTION (0.5 pages):

The significance section should describe the *credible*, positive effect that the successful completion of your project is likely to have on addressing an important funding institution-relevant problem. This

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"Write Winning NIH Grant Proposals" (continued from page 4)

is one of the important criteria for review, and often under-developed by new applicants.

» INNOVATION SECTION (0.5 pages)

» APPROACH SECTION:

This section is a *detailed* plan of your project and should be developed for each aim: *what* you propose to do, *why* and *how* exactly you propose to do it, what can be *expected* once your proposed work has been completed, and what might *go wrong* and how you would fix it. Omission of "what could go wrong" and your solution is a common mistake. For each aim, the basic components of this section will be:

- Introduction
- Justification and feasibility
- Work design or experimental plan
- Expected outcomes/results
- Possible problems and their solutions, or alternative strategies

The simplest way to write the **research plan** section is to develop a detailed outline with estimated page limitations, to address one individual subunit at a time, and set aside a two-hour slot per day devoted to grant writing. An important key point is to keep the proposal short, with clear and simple

organization, and use legible fonts and illustrations.

Two additional points are:

- » **Title choice:** Dr. Morrison recommends making a list of 10-12 key words related to your application's significance, and creating 6 titles using different combinations of these words. Then go ask 10 colleagues which one they prefer - pick the title that 8 out of 10 colleagues prefer.
- » **The abstract section is the second most important page of proposal:** Write this section last, but not at the last minute. It must be written in plain English and in the third person. Keep in mind it will become a part of the public domain if the grant is funded!

Dr. Morrison also gave some specific information and recommendations for young investigators. Investigators applying for a grant within 10 years of their terminal degree are termed *Early Stage Investigators (ESIs)* and are evaluated differently. The peer review process focuses more on the applicant's training and experience than on the record of accomplishments, and ESIs are not expected to provide the same depth of preliminary data one would expect from an established investigator. When applying for K awards, which are training awards, your long-term goal should be to become an independent

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"Write Winning NIH Grant Proposals" (continued from page 5)

investigator in the research area of your choice, and the application should state **both** research and training objectives and expectations.

The most common mistakes of young/new investigators are:

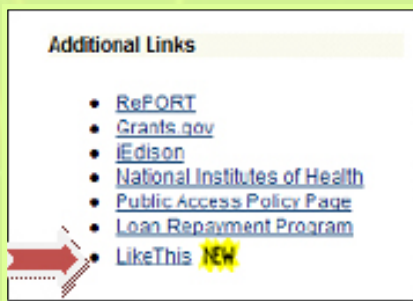
- » To over-promise – set up too many or too ambitious aims compared to the length/funding of the grant
- » To include too little detail about the proposed studies – how and why they will be done
- » To under-develop the statement of significance section

Dr. Morrison's grant workshop was very insightful. The seminar gave us a lot of information about what to avoid and how to prepare and write a successful grant application. It was inspiring: Dr. Morrison constantly reminded us to evaluate our proposal and formulate our ideas from the point of view of a reviewer. This workshop left us with motivation to write a grant and the confidence that all of us can be successfully funded, as long as we are willing to put enough time and effort into writing the proposal.

Check Out These New Scientific Search Tools!

eRA Commons offers the **LikeThis** tool to aid Principal Investigators in finding and learning about other research projects that have similar goals and objectives as their own. By entering specific scientific terms, investigators will be provided a listing of similar funded projects and/or publications.

You can find **LikeThis** at the [home page](#) under the Additional Links section along the right side of the page.



The Chemical Abstracts Service offers the web version of **SciFinder**. It allows you to search publicly-disclosed literature of variety of scientific disciplines such as chemistry, biomedical

sciences, bioinformatics, and agricultural science. This coverage extends to more than 10,000 scientific journals plus dissertations and conference proceedings, and is searchable by text, chemical name or structure, author, and many other options.

The NIH Library, in collaboration with many of the ICs, has provided us with access to SciFinder. To apply for your personal SciFinder ID and password, forward Ms. Barbara Brandys brandysb@mail.nih.gov an email with the following information: first and last name, email (NIH only), phone, NIH ID number, Institute/Center, and Location (City, State).

July Announcements

NICHD: “WRITING YOUR TEACHING-BASED PROFESSORSHIP APPLICATION”

Led by Dr. Sydella Blatch
Monday, August 6th
10:00 AM to Noon

If you are considering an academic career and want a jump-start on preparing your faculty teaching application, the NICHD Office of Education is offering a workshop for you!

This workshop will go beyond introducing you to the application components of teaching-based academic jobs and focus on ways to stand out in your cover letter, CV, and teaching and research statements. The topics to be addressed include: the concepts of interpreting a job ad to identify what key elements to include in your application; insight into what search committees at teaching-intensive institutions are looking for; and learning how to identify vital information that is not included in the ad but is important for your application packet. Time will also be designated to outline your own application, and Dr. Blatch is willing offer each attendee written comments.

If you are interested, sign up soon by sending Yvette Pittman (pittmanyv@mail.nih.gov) an email. Only 15 spots available!

OITE WRITING WORKSHOPS: BASIC SCIENCE WRITING AND WRITING AND PUBLISHING A SCIENTIFIC PAPER

Fridays in July, these 4-week courses are available for NIH Intramural trainees interested in improving their writing skills. For registration and course descriptions to determine which course meets your professional development needs, the web link is https://www.training.nih.gov/writing_schedule

Highlights of the 2012 Endocrine Society's Annual Meeting



The "Tanner 8s" team won the ENDO Trivia Challenge! Congratulations to all who participated in the team. A special thanks to our honorary endocrinologists, Elliot and Joseph Condarco. It was with their help that they were able to answer the final question and double their points to take 1st place!

Congratulations as well to all of the fellows who presented posters! Presidential poster winners from NICHD were **Andreas Moraitis, Sahzene Yavuz, Jaydira DelRivero, Alison Boyce, and Jenny Gourgari.**



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